

THE VINERY
POLING
ARUNDEL

ARBORICULTURAL
IMPACT
ASSESSMENT
(INC. METHOD STATEMENT)

PREPARED BY
ACD
ARBORICULTURE

FOR
FARGRO LTD

ACD

Ecology

Arboriculture

Landscape Architecture

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1. EXECUTIVE SUMMARY

- 1.1. The proposed layout is in line with recommendations of BS5837 (BSI 2012 British Standards Institute). Adequate protection can be provided to ensure all retained trees are protected throughout development.
- 1.2. The proposals encompass the construction of an industrial unit with associated parking areas. The existing roadway and entrance feature from the A27 are to be incorporated into the design. Trees to be removed are limited to trees of reduced quality and landscape value.
- 1.3. The arboricultural method statement and tree protection plan include details of all tree protection measures required, including provision for site supervision where required.
- 1.4. Any fencing and other tree protection measures should be erected after tree surgery but before any demolition or construction contractor enter the site, and before any soil stripping takes place.
- 1.5. There must be no changes in levels, service routing, machine activity, storage of materials or site hut positioning within areas to be protected and the protective fencing must remain in position for the duration of the construction process.



Figure 1 Overview of development area shown in blue

2. INTRODUCTION

- 2.1. FARGRO Limited instructed ACD Arboriculture in November 2012 to prepare the following combined arboricultural report; this combines an impacts assessment and statement of methodology.
- 2.2. Following the recommendations of BS5837:2012 Trees in relation to design, demolition and construction- Recommendations (BSI 2012 British Standards Institute), this report includes the necessary information to support a planning application. It demonstrates that the impact, both direct and indirect, of the proposed development within the site, has been assessed and where appropriate, mitigation and tree protection proposed.
- 2.3. The implementation of any protection methods and special construction details recommended within this report are critical for ensuring the retained trees are successfully protected through the construction process and must be implemented prior to any work on site.
- 2.4. This assessment is based upon the supplied layout drawing, reference 9407-FE-013 and the Plan-It Geomatics supplied topographical site survey reference S2020 dated July 2012.
- 2.5. The controlling authority is Arun District Council, who can be contacted at:

Arun Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF. (01903) 737756.
- 2.6. This assessment considers the impact of the development on the constraints posed by the retained trees (both beneath ground: the root protection area (RPA), and above ground: the canopy), and material considerations in relation to planning policy.
- 2.7. Direct impact from development comes in six main forms:
 - 1) Surface installation within RPAs
 - 2) Root loss from excavation for foundations, drainage and other utilities within RPAs
 - 3) Soil stripping, removal and level changes within RPAs
 - 4) Excessive access facilitation pruning to retained trees
 - 5) Soil compaction from storage and vehicle movements within RPAs
 - 6) Soil contamination
- 2.8. Indirect impact can come from changes to the site hydrology, future pressure to prune or fell, failure of trees exposed by removal of neighbouring trees, and other environmental changes which can take several years to manifest.
- 2.9. The RPA for each tree represents a minimum area in m² that should be left undisturbed around each retained tree. This is initially represented by a circle but is often adjusted to account for constraints to root growth within the site (primarily highways and buildings).

3. ARBORICULTURAL IMPACT ASSESSMENT

3.1. OVERVIEW OF PROPOSED DEVELOPMENT

3.1.1. The proposals encompass the construction of an industrial unit and covered storage unit with associated parking areas. The existing roadway and entrance feature from the A27 are to be incorporated into the design.

3.2. TREES PROPOSED FOR REMOVAL & SURGERY

3.2.1. The following groups of trees are proposed for partial removal:

No.	Name	BS Cat
G5	Mixed species (partial)	B2
G6	Lawson cypress (partial) (<i>Chamaecyparis lawsoniana</i>)	C2
G7	Common alder (single tree) (<i>Alunus glutinosa</i>)	C2

3.2.2. All the trees listed are internal to the site and require only partial removal. In the case of mixed species boundary group no. G5 a small section will be removed to accommodate the proposed storage unit, this section to be removed projects from the dominant body of the boundary group. The sections of Lawson cypress group no. G6 to be removed are to accommodate the internal roadway/footpath infrastructure. In addition a single Common alder from group no. G7 will also be removed to accommodate the access footpath on the western boundary.

3.3. DEMOLITION & SITE CLEARANCE

3.3.1. To ensure damage does not occur to trees highlighted for retention, tree protection fencing must be erected before ANY plant/vehicles entering site whatsoever. This should be subject to a pre-commencement site meeting between the developer, their project arboriculturist and a representative from the Local Authority.

3.3.2. No special demolition procedures need be observed on this site, other than respecting the tree protection fencing.

3.4. CONSTRUCTION WITHIN RPAS

3.4.1. The construction of all proposed buildings is outside the RPAs of trees shown to be retained.

3.4.2. The construction of the outfall, into an existing drainage ditch, from the storm water storage crates is shown in proximity of the RPA of English oak tree no. T4. The trunk for the tree is on the opposing side of the drainage ditch and whilst the RPA has not been revised in shape it is felt that pre-existing site conditions, in the form of the water filled drainage ditch, has likely restricted the symmetrical distribution of roots. Therefore it is reasoned that there will be no impact to the tree.

3.5. PROTECTION FENCING

3.5.1. Figure 2 of the British Standard recommends a standard fencing design for tree protection. This is a weld mesh panel design, mounted upon a well-braced scaffold framework. This is perfectly adequate for this site and all the retained trees can be suitably protected by its erection before any works start on site whatsoever.

3.6. SERVICES

3.6.1. Full details of the service and utility provisions for the site remain to be finalised. However, there is adequate space for utility trenches to access the site whilst avoiding RPAs and exclusion zones.

3.6.2. It is fundamental to tree protection that infrastructure design is sensitively approached, as trenching close to trees may damage roots and affect tree health and stability. Details of services have not been provided at the time of writing. The Tree Protection Plan, showing the constraints posed by retained trees will be passed to the infrastructure engineers to inform their design, ensuring that all services avoid areas of potential conflict. As per BS5837:2012 Figure 1, once further details become available as part of the detailed/technical design for the site, the TPP and AMS may need to be revised to incorporate service details for inclusion in the tender documentation.

4. ARBORICULTURAL METHOD STATEMENT

TO BE READ INCONJUNCTION WITH THE APPENDED TREE PROTECTION PLAN **REF: PRI18427-03**

4.1. PHASING OF OPERATIONS & SITE SUPERVISION

4.1.1. Given the reduced scope of tree protection required on this development, frequent site monitoring visits are not considered necessary. However, input and supervision from the project arboriculturist will be required at the following stages:

- 1) Pre-start site meeting with groundwork contractors, site manager and LPA arboricultural officer/landscape officer.

4.1.2. Supervision will be required should any unplanned access and/or work be required in the construction exclusion zone.

4.1.3. Supervision will require the arboriculturist to be present throughout the task, to ensure all the arboricultural objectives are met. If the task is to take a long period of time, provided the arboriculturist is satisfied, and after an initial 'tool-box talk', the supervision may be reduced to telephone contact between the site foreman/contractor and arboriculturist.

4.2. TREE PROTECTION AREAS

4.2.1. Based on tree survey data, tree protection areas have been determined for every retained tree. These areas are designed to protect at least a functional minimum of tree root mass in order to ensure that the trees survive the construction process.

4.2.2. Some trees on this site are subject to statutory protection by Tree Preservation Order. Damaging them is a criminal offence and is also contrary to planning conditions that, if breached, could lead to all work on site being stopped by the local authority.

4.2.3. It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.

4.2.4. Inside the exclusion area of the fencing, the following shall apply:

- No mechanical excavation whatsoever
- No excavation by any other means without arboricultural site supervision
- No hand digging without a written method statement having first been approved by the project arboriculturist.
- No lowering of levels for any purpose (except removal of grass sward using hand tools)
- No storage of plant or materials
- No storage or handling of any chemical including cement washings
- No vehicular access
- No fire lighting

4.2.5. In addition to the above, further precautions are necessary adjacent to trees:

- No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builders sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection area of retained trees
- No fire shall be lit such that flames come within 5m of tree foliage.

4.3. TREE PROTECTION FENCING

4.3.1. The tree protection plan (see the latest revision of: PRI18427-03) shows the alignment of tree protection fencing (TPF), which is to be installed prior to any of the following taking place:

- Demolition
- Plant and material delivery
- Soil stripping
- Utility installation
- Construction works
- Landscaping

4.3.2. Stages for installation of TPF:

- 1) Hand clearance of any vegetation to allow clear working access.
- 2) Setting out of fencing points
- 3) Fencing erected
- 4) Site meeting with project arboriculturist to 'sign-off' tree protection fencing.
- 5) Site accessible to demolition/construction traffic

4.3.3. Once erected, all TPF will be regarded as sacrosanct, and will not be removed or altered without prior recommendation by the project arboriculturist and approval of the local planning authority.

4.3.4. The typical TPF construction is suitable for areas of high intensity development, and shall comprise of interlocking weld-mesh panels, well braced to resist impacts by attachment to a scaffold framework that is set firmly into the ground. A detailed specification can be found on the TPP.

4.3.5. If any alternative method of barrier construction is proposed, consultation with the project arboriculturist will be obtained to clarify the efficacy of the revised design prior to informing the local planning authority and obtaining their consent.

4.3.6. Once barriers and/or ground protection have protected the exclusion zone, construction work can commence.

4.3.7. All weather notices should be erected on the barriers (for example see figure below).



Tree protection sign (download from www.acdarb.co.uk)

4.4. SITE STORAGE, PARKING, WELFARE FACILITIES, ETC.

4.4.1. The site will require provision for; site storage, contractor parking, welfare facilities, temporary services/drainage, material drop of points, etc.

4.4.2. No details of these provisions are available at the time of writing of this report.

4.4.3. None of the above provisions will be sited within RPAs of retained trees without the input or the project arboriculturist and the consent of the Local Authority.

4.5. TREE SURGERY AND REMOVAL

4.5.1. All trees and groups of trees to be removed are indicated on the TPP.

4.5.2. If any further surgery work is proposed, it will be submitted to, and approved by, The Council, before being carried out.

4.5.3. All work will be carried out in accordance with BS3998 (BSI 2010 British Standards Institute) industry best practice and in line with any works already agreed with the Council.

4.5.4. The Tree Surgeon shall ideally be chosen from The Arboricultural Association's Approved Contractor list. All work shall be undertaken at the appropriate time and with the consent and approval of the Site Agent.

4.5.5. The statutory protection afforded by the Wildlife and Countryside Act (1981) and Countryside and Rights of Way Act (2000) will be adhered to. If further advice is required, particularly if bats are discovered during tree work, it will be obtained from Natural England or other competent persons and recommendations adhered to.

4.6. SOFT LANDSCAPING

4.6.1. All landscaping and associated ground preparation within exclusion zones will be carried out sensitively to ensure root damage is mitigated as much as is practicable. At no time is any heavy plant to be used within any protected area. Removal of existing vegetation will be carried out by hand, turf may be removed using a mechanical turf stripper or by hand.

Turfing

4.6.2. Stages for turfing gardens and open spaces:

- 1) No plant/machinery to be used in the area for whatever reason
- 2) Remove TPF to allow access to area.
- 3) Do not reduce any high spots or excavate in any way.
- 4) Existing poor quality turf may be removed with a turf stripper.
- 5) Use good quality top-soil to level any low-lying areas and hollows, and provide a fine tilth to lay turf on. This imported soil must not result in a level increase of more than 100mm in any area.
- 6) Import turves by hand in wheelbarrow
- 7) Lay turves

Planting

4.6.3. Should the soil be compacted or have a poor structure that may hinder the development of any new planting, soil decompaction techniques may be used upon consultation with the project arboriculturist.

4.6.4. Stages for planting within tree protection areas:

- 1) No plant machinery to be used in the area for whatever reason
- 2) Remove TPF to allow access to area.
- 3) Remove existing vegetation by hand, turf may be removed using a mechanical turf stripper.
- 4) Do not reduce any high spots or excavate in any way.
- 5) Import good quality top-soil by hand (with wheelbarrow) into area.
- 6) Level to a depth of no more than 100mm with hand tools
- 7) Dig individual planting pits for each plant by hand (including hedging which must not be trench planted)
- 8) Any mulch should also be imported and spread by hand.

4.6.5. No works will be carried out within any protected areas if the soil moisture is of a level likely to allow compaction to occur.

4.7. INSTALLATION OF UNDERGROUND SERVICES

4.7.1. Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local soil hydrology in a way that adversely affects the health of the tree. For this reason, particular care should be taken in the routeing and methods of installation of all underground apparatus. Wherever possible, apparatus should be routed outside RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts. Inspection chambers should be sited outside the RPA.

4.7.2. Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routeing should be drawn up in conjunction with the project arboriculturist. In such cases, trenchless insertion methods should be used: Microtunnelling, Surface-launched directional drilling, Pipe ramming or Impact moling (see BS5837:2012 Table 3), with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected, excavation using hand-held tools might be acceptable for shallow service runs. If this is the case, the following methodology must be followed:

4.7.3. Stages for installing services by hand within tree protection areas:

No plant machinery to be used in the area for whatever reason

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work
- 2) Remove just enough tree protection fencing to allow access to area and facilitate trenching
- 3) Remove any surface vegetation or existing hard surfaces using hand tools
- 4) Using an air-pick excavate the trench, keeping to minimum dimensions required
- 5) Roots occurring in clumps of 25 mm diameter and over are encountered they will be retained, and kept damp by covering with hessian (re-wetted as required). If required, these should be severed only following consultation with an arboriculturist, as such roots might be essential to the tree's health and stability
- 6) Feed in services.
- 7) Back fill trench with 200-300mm depth of excavated soil, or a mixture of excavated and imported top-soil to BS3882 (BSI 2007 British Standards Institute), firming down with heels
- 8) Repeat step 7 until trench is filled
- 9) Re-erect tree protection fencing as per approved plan

4.7.4. The method of excavation above, for trenching within RPA's, is using air excavation. This tool utilises compressed air to remove soil from around tree roots causing minimal damage and can be run off a typical site compressor. ACD can provide details of contractors supplying air excavation services if required.

4.7.5. Alternatively trenchless technology, such as thrust boring can be used in some instances and is particularly effective as it can pass directly under the tree, at a depth which is likely to avoid almost all impact on roots of the subject tree. As no access/thrust pits will be located within the RPAs of the subject trees, the need for arboricultural supervision is limited.

4.8. EXCAVATION WITHIN RPAS

4.8.1. Stages for excavation within RPAs if required:

- 1) Contact project arboriculturist to hold pre-start site meeting, 'toolbox' talk and supervise the operation.
- 2) Remove TPF to allow access to area (if required).
- 3) Identify sensitive area.
- 4) Remove hard surface if necessary (see relevant section of this report).
- 5) Excavate with no-tines bucket, or by hand, under close supervision.
- 6) If roots are found, clear by hand around them.
- 7) If roots found are greater than 25mm diameter then cover with damp hessian and keep moist until backfilled. If excavation requires all roots to be severed then proceed as below.
- 8) Cleanly sever roots with bypass secateurs, loppers or pull cut saw at right angles to root. Avoid tearing or ripping the root.
- 9) Backfill as soon as possible to cover cut root ends.

24.2. If, for whatever reason, the project arboriculturist feels that a tree's stability has been compromised during the operation, then the LPA shall be contacted and the arboricultural officer (or appropriate landscape officer) notified. A decision can then be made as to the best way forward.

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APPENDIX 1: TREE PROTECTION PLAN

PRI18427-03



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